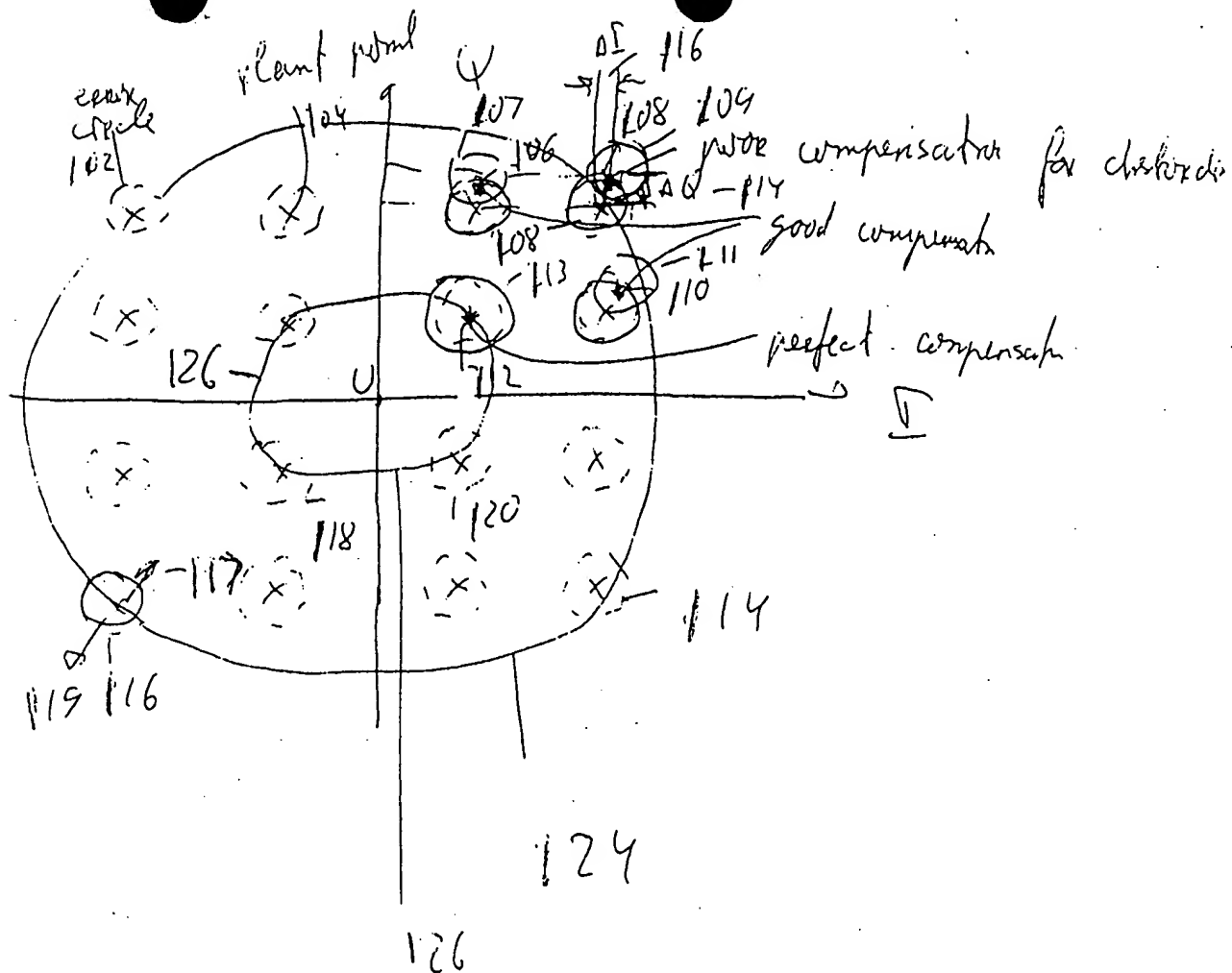


Available Copy

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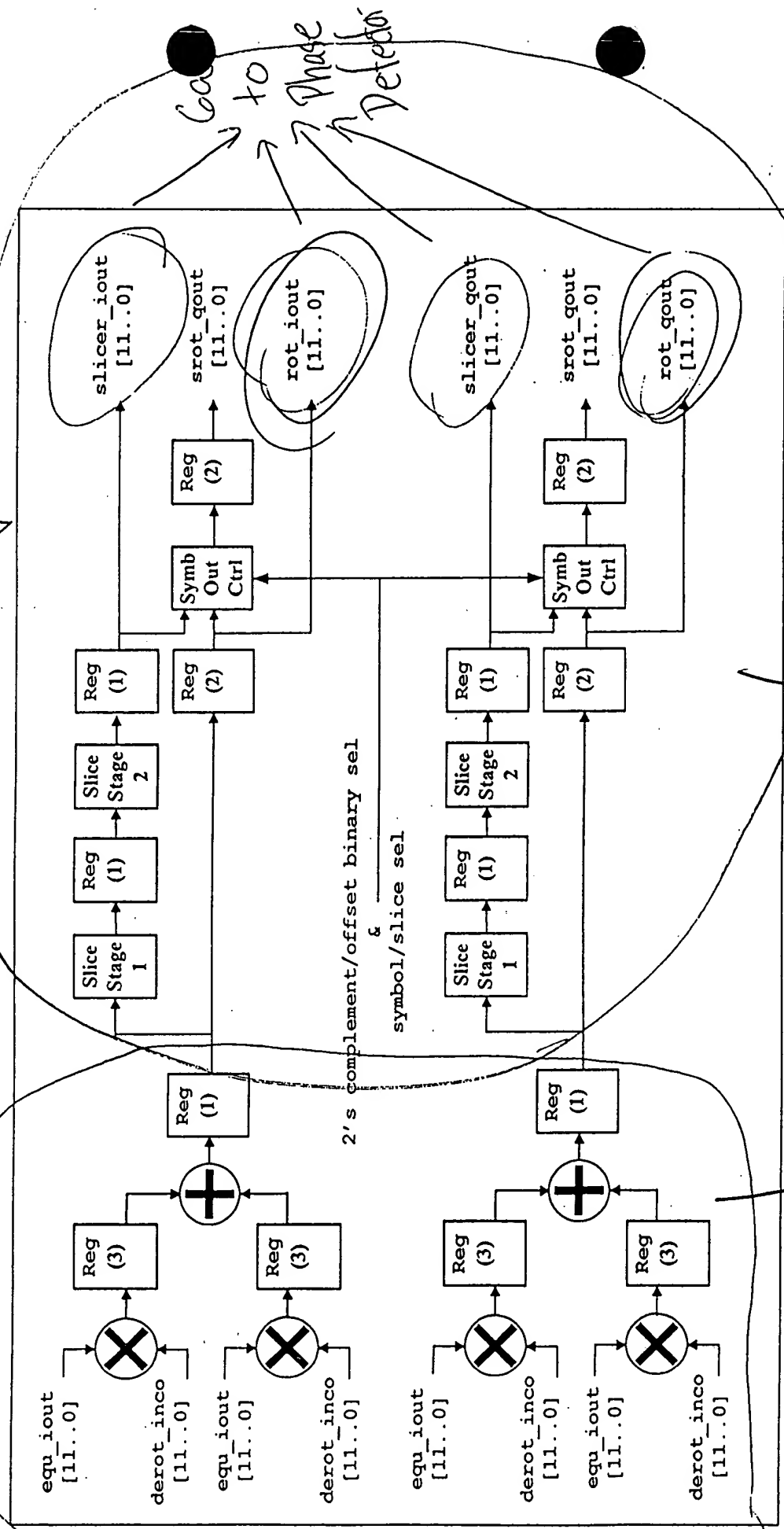
Verdula -105/Quak -195

Widener -105 / Oct-1993

NO THIS IS NOT a complex multiplier used in the green PLC

Complex Multiplier

Derotator (H)



Carrier Derotation

16

Fig. 3

consulte

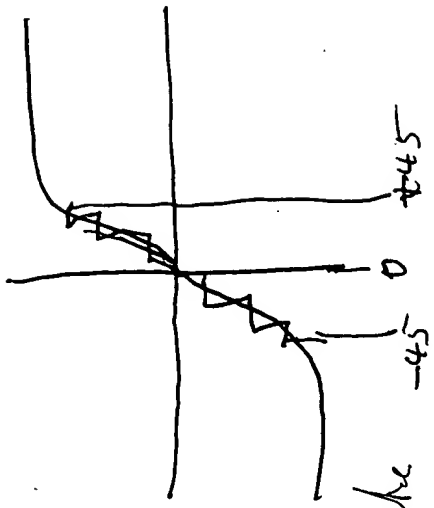


**Clocked when
clk_valid = 0 and
clk_cnt = 1**

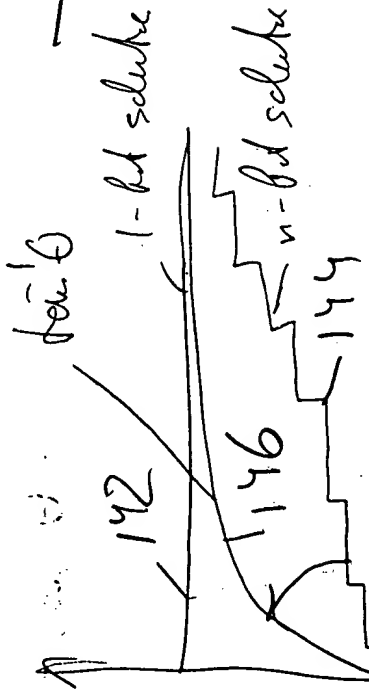
52

109101 53018660

W relbl -105 / rank -195



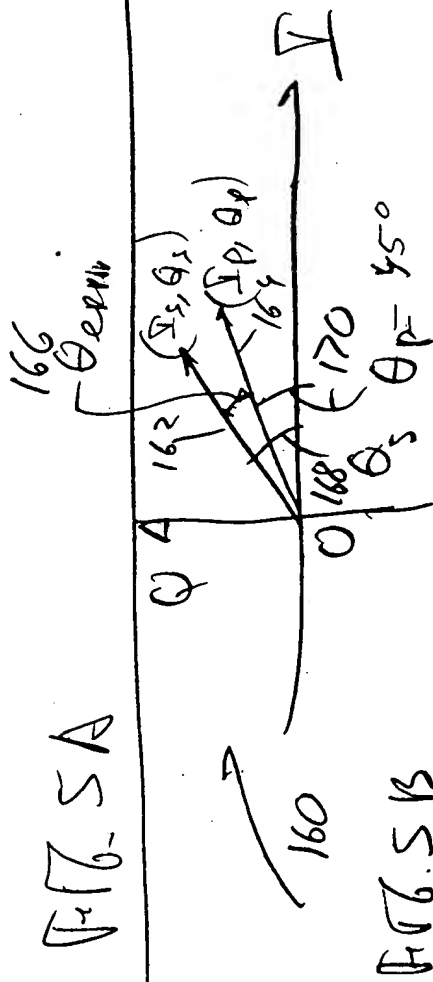
phase detector output



wrong!

θ

140

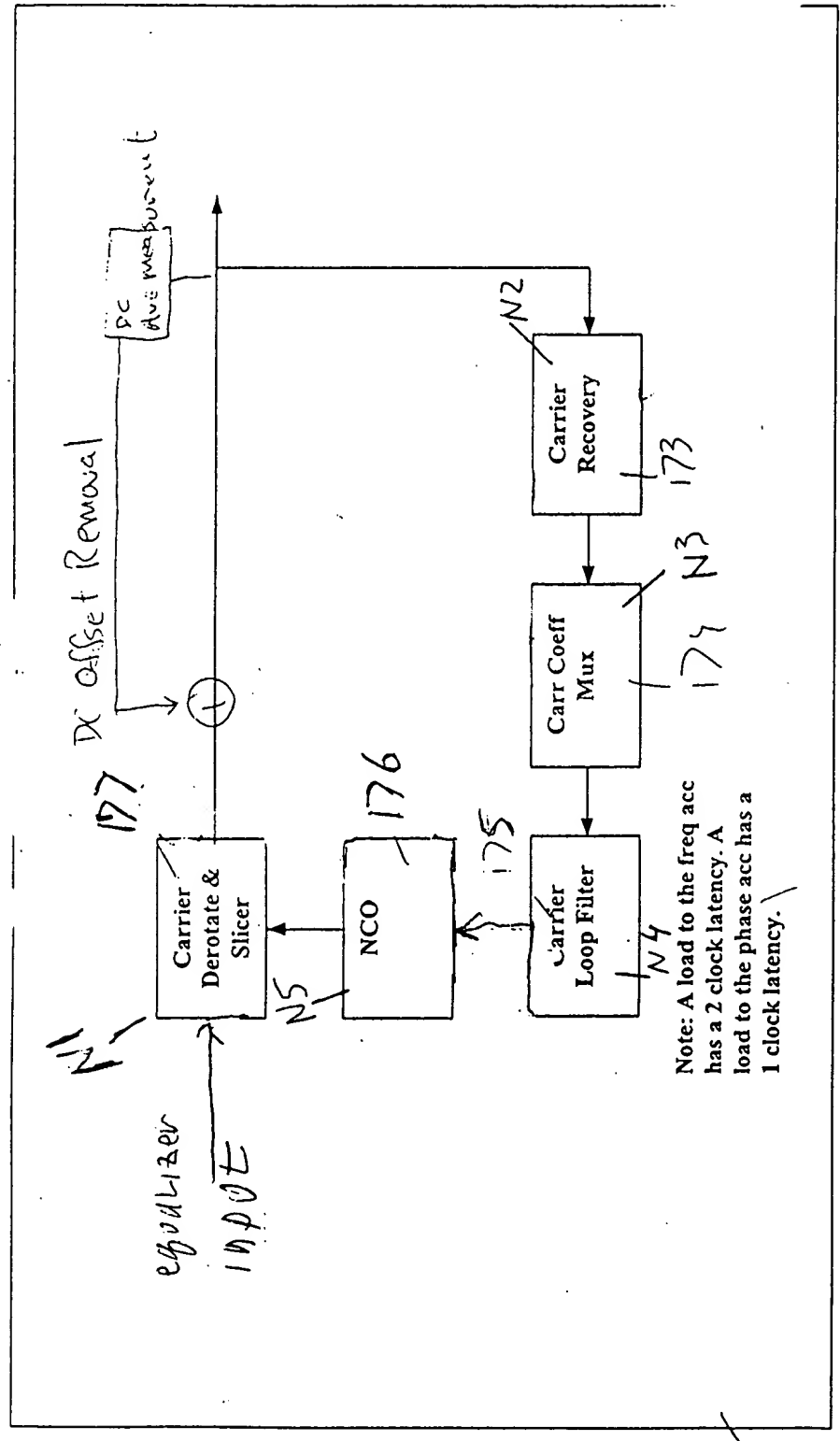


166 SA

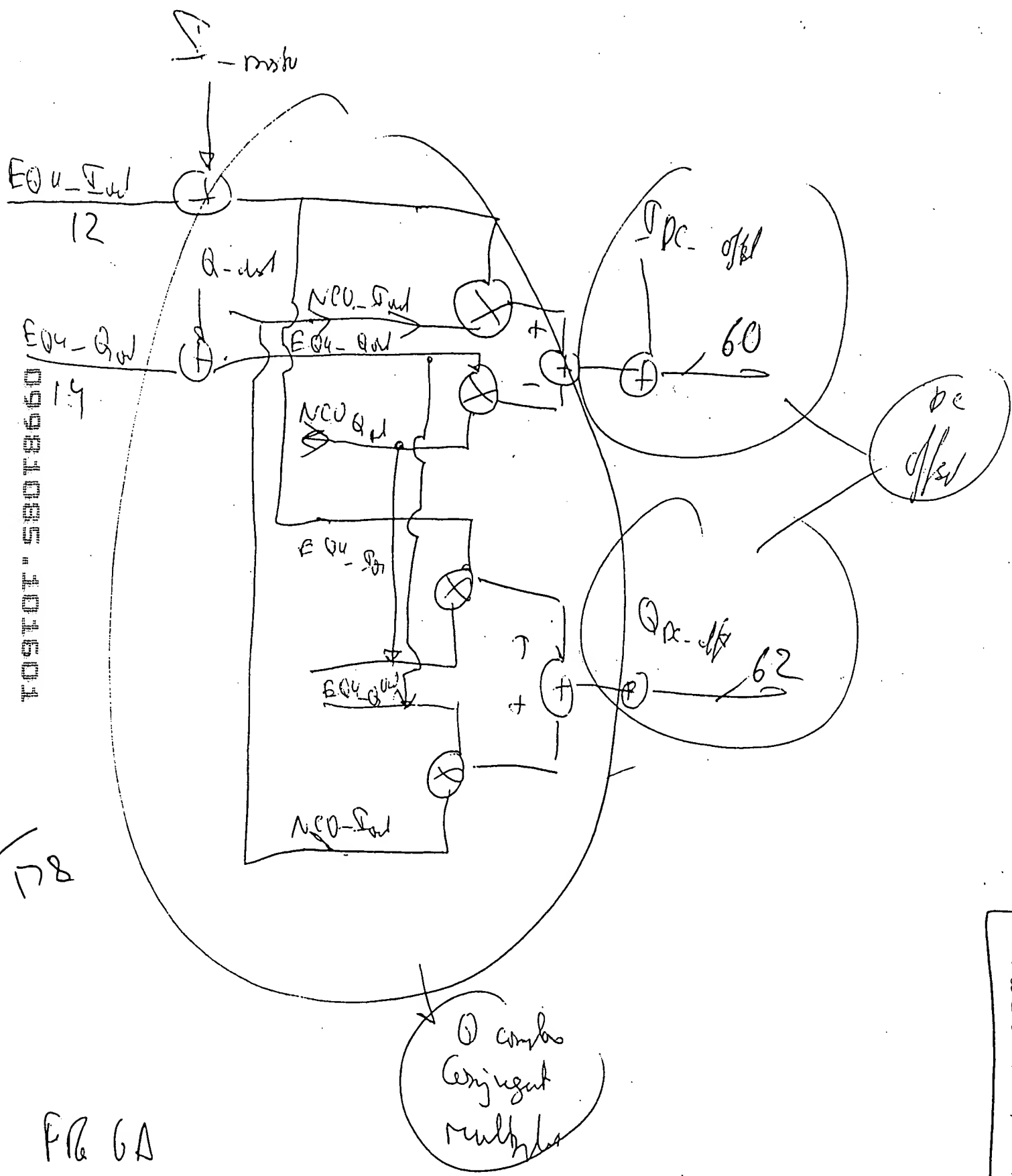
160 SB

Worksheet - 105 / Part-195

TOTAL "SECTIONS"



F050



09981085-101601

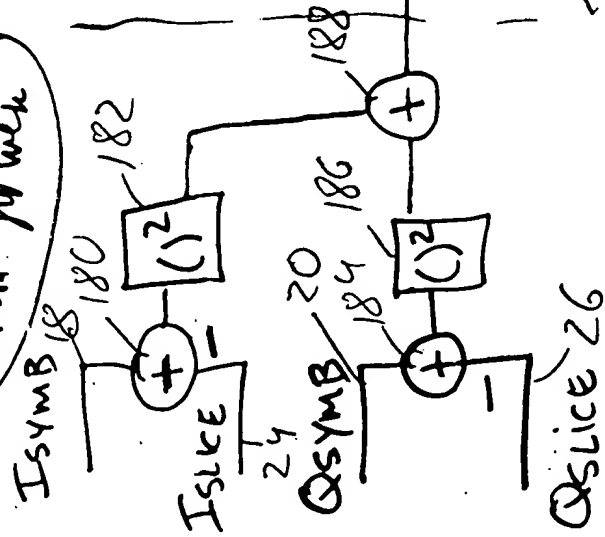
FIG 6A

Widened-105/Gen-195

TO direct effect of the data was

Instagram even now were

Number of - Error Power Squared



Constellation Error Measurement

Const Avg Coeff (0.0 \rightarrow 1.0)
Error

Const Error

Experiment Averges.

222-0

```

if (Avg Coeff = 0)
if (Avg Coeff = 1)
else

```

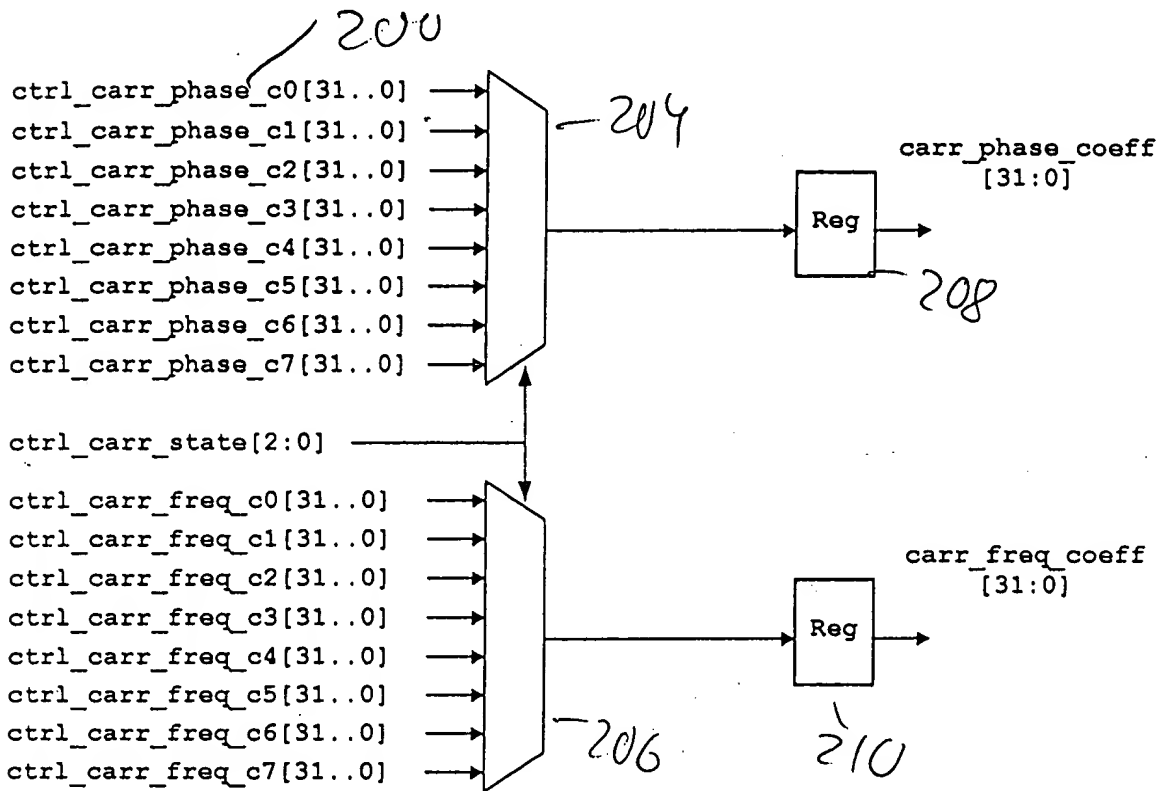


OUTPUT IS HELD (INPUT IGNORED)
 OUTPUT = INPUT
 OUTPUT IS EXPONENTIAL AUG
 OF INPUTS

23

FR. 6B

0981035-101500

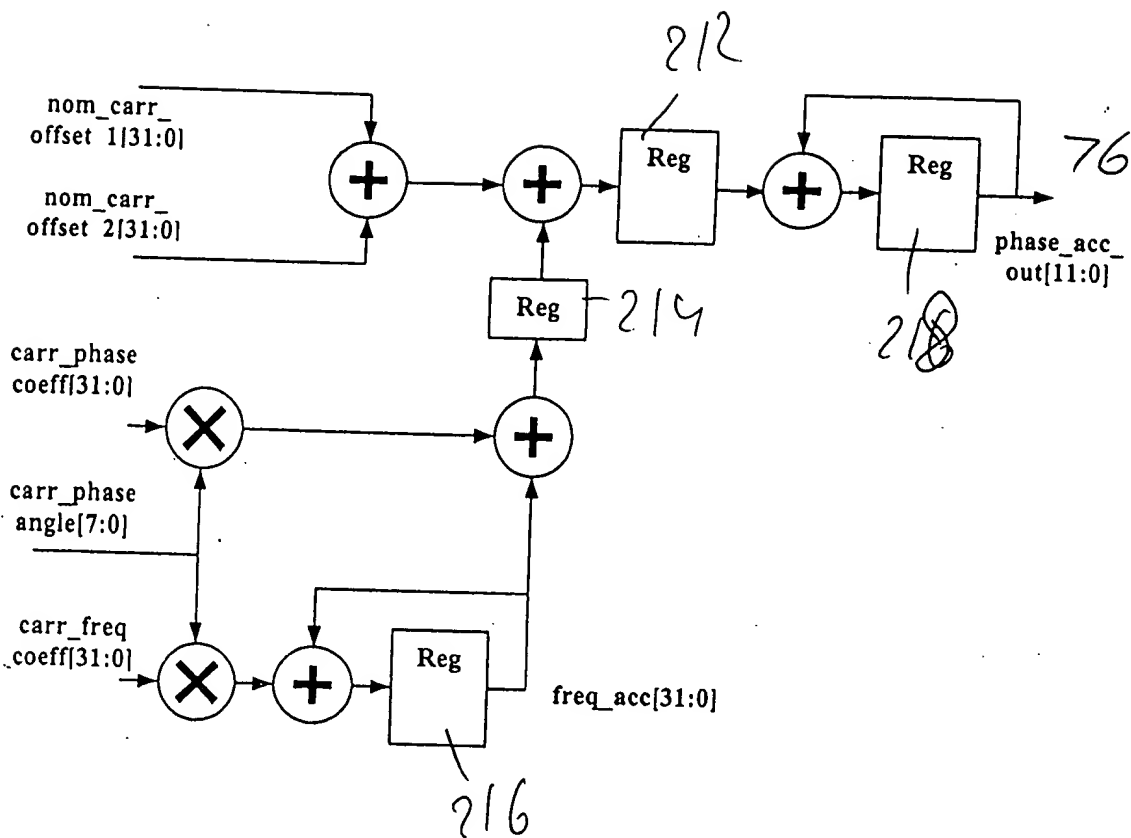


90
A.B. 7.

202

Wetland-105/Gar-195

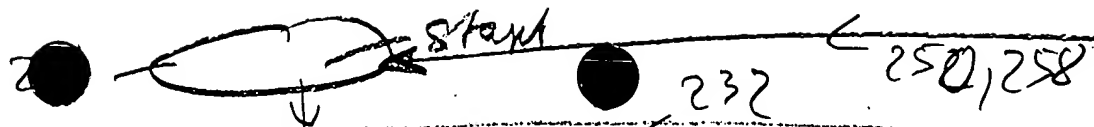
09581085 101601



74

FIG 8. Carrier Loop Filter

Wrdls-105 / Oct-195



(A) Sampling a QAM signal received from a transmission channel.

(B) Recovering a symbol clock function from the sampled QAM signal.

(C) Applying the sampled QAM signal to the adaptive equalizer in order to obtain a QAM equalized signal in a Blind Equalization (BE) mode.

(D) Using a slicer to locate a nearest plant point for the QAM BE equalized signal for each recovered symbol clock.

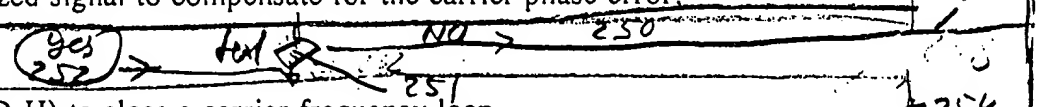
(E) ~~Using a phase detector to~~ Obtain an instantaneous inphase component and an instantaneous quadrature component of a phase error signal by comparing an inphase component and a quadrature component of the QAM BE ~~equalized~~ signal and an inphase and a quadrature component of the nearest plant point for each symbol clock.

(F) Using a complex conjugate multiplier to translate the inphase component and the quadrature component of the phase error signal into an instantaneous phase error ^{angle} vector for each symbol clock:

(G) Averaging the instantaneous phase error vector signal by using a carrier loop filter.

(H) Using a complex multiplier to insert an inverse of the averaged phase error vector signal into the QAM BE equalized signal to compensate for the carrier phase error:

(I) Repeating the steps (D-H) to close a carrier frequency loop.



end + 258

230
F B. 9

Writeland - 105 / Vack - 195

Selecting an initial set of PID coefficients by using the state machine to set the variable bandwidth of the carrier loop filter to be higher than a frequency uncertainty during a QAM signal acquisition state of the QAM demodulator.

262

Adjusting the initially selected set of PID coefficients by using the state machine in order to decrease the initially set bandwidth of the carrier loop filter in incremental stages to be less than the frequency uncertainty during a carrier tracking state of the QAM demodulator.

264

244

Step 6 - Normal Mode
F1610

Module 105/6 at 195

266

(A) Starting with a first set of coefficients of the carrier frequency loop in the state machine corresponding to a normal set of input code words.

(B) Detecting a burst set of input code words.

(C) Selecting a second set of coefficients of the carrier frequency loop in the state machine corresponding to the burst set of input code words for a predetermined amount of time to switch the QAM modem to a burst mode of operation.

(D) Switching the state machine back so that to set the carrier frequency loop includes the first set of coefficients after the burst mode is over.

(E) Repeating the steps (A-D).

Step 6 - Burst Mode

FIG. 11

W. H. H. - 105/100 - 195

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